

## ABSTRACT

The present invention features a data link layer processor for performing VLAN tagging operations, policing, shaping, and statistics acquisition integrally with one or more media access controllers (MACs). When a plurality of data link layer processors are operated in parallel in a switching device, the computational burden carried by the route engine is significantly reduced. Moreover, the data link layer processor in its several embodiments may be used to introduce various forms of pre-processing and post-processing into network switching systems that employ route engines that do not posses such functionality.